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Joseph S. Tripoli
THOMSON Multimedia Licensing Inc.
Patent Operations, Two Independence Way
Post Office Box 5312
Princeton, NJ 08540-5312

EXAMINER	
CLEVELAND, MICHAEL B	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 10/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/988,513	LAPERUTA, ET AL.	
	Examiner	Art Unit	
	Michael Cleveland	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 3, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giancaterini (U.S. Patent 4,590,092, hereafter '092) in view of Datta et al. (U.S. patent 5,370,952, hereafter '952).

'092 teaches a method of manufacturing a luminescent screen assembly for a color cathode-ray tube (CRT) (col. 1, lines 9-16) comprising the steps of:

screening an inner surface of a faceplate panel, thereby providing on the inner surface a screened surface having phosphor deposits (col. 2, lines 45-56) and organic materials (col. 3, lines 1-8; col. 4, lines 21-23) having at least two components with different thermal decomposition characteristics (e.g., polyvinyl alcohol and ammonium oxalate), at least some of the organic materials overlying the phosphor deposits (col. 3, lines 1-7);

depositing a metal layer on the organic materials (col. 3, lines 1-13); and

removing the organic materials from the inner surface of the faceplate panel by volatilizing the organic materials through heating (col. 3, lines 14-22), which diffuse through

holes in the aluminum layer faster than the gaseous decomposition products evolve (otherwise, blisters would form) (col. 3, lines 14-21; col. 2, lines 16-30).

'092 does not explicitly state that the volume rate of decomposition products is less than the diffusion rate through the metals. However, it does teach that the probability of blister formation is directly proportional to the speed of decomposition or evaporation (col. 2, lines 16-30). Thus, the process necessarily involves a trade-off between greater production for faster heating and less blister formation for slower heating. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have optimized the rate of decomposition in order to achieve a desired balance of productivity and blister formation.

'092 does not explicitly teach an electrographic screen process nor that the organic materials include an organic conductor layer, an organic photoconductor layer, and a filming layer. However, '952 teaches that a conventional method of manufacturing a cathode ray tube is an electrophotographic screening process, which uses a volatilizable organic conductor layer, organic photoconductor layer, and a filming layer (col. 3, lines 16-28; col. 4, lines 27-29; Fig. 4). The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have deposited the phosphor and metal layers of the CRT of '092 by the electrographic screening process of '952 with a reasonable expectation of success because '092 teaches that its electrographic screening process is a suitable method of depositing the phosphor and metal layers of a CRT.

Claim 3: The process must inherently have a rate of temperature increase (col. 3, lines 14-16) which necessarily determines the volume flow rates.

Claim 11: The screen is heated higher than 350 °C to volatilize the organic components (col. 3, lines 14-17). This necessarily involves heating from the starting (i.e., first) temperature to a second temperature at which a first organic component (the oxalate, which vaporizes first) begins to decompose, heating to a third temperature above the second temperature during which at least the first organic component begins to decompose, and heating to the final temperature during which the other organic components at least finish decomposing.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Giancaterini '092 in view of Datta '952, as applied to claim 1 above, and further in view of Saulnier, Jr. (U.S. Patent Office 3,067,055, hereafter '055) and Ehemann, Jr. (U.S. Patent Office 5,619,330, hereafter '330).

'092 and '952 are discussed above. It does not teach that organic materials are present in a coating weight of at least 1.0 mg/cm^2.

The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. '055 teaches that phosphor layers may be deposited with coating weights of up to 2.78 mg/cm^2 of which up to 17% may be an organic binder, such as polyvinyl alcohol (col. 2, lines 35-45). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the phosphor layer of '055 as the particular phosphor layer of '092 with a reasonable expectation of success because '055 teaches that it is an operative phosphor layer. The layer contains up to at least (0.17)(2.78 mg/cm^2)=0.47mg/cm^2 of organic material. '330 teaches that the coating weight of the organic photoconductor layer may be about 0.6 mg/cm^2 (col. 7, lines 36-39). Therefore, taking the references as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used about 0.6 mg/cm^2 of organic material of the photoconductive material and up to 0.47 mg/cm^2 of organic material within the phosphor layer. Therefore, the prior art fairly teaches that operative amounts of organic materials include coating weights at least up to 1.07 mg/cm^2. The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549.

5. Claims 3-6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giancaterini '092 in view of Datta '952 as applied to claims 1 and 11 above, and further in view of Patel et al. (U.S. Patent 5,145,511, hereafter '511).

Claim 4-5: '092 and '952 are discussed above, but do not explicitly teach using more than one temperature rate nor screen bake and frit curing steps. However, the selection of

something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. '511 teaches that different heating rates may be used to allow screen bake and frit sealing (i.e., curing) cycles (col. 5, lines 22-56). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used different heating rates in the process of '092 because '511 teaches that they may be used to permit a combined screen bake and frit sealing cycle.

Claim 6: A source of oxygen may be present during frit curing (col. 5, lines 11-20); col. 1, line 59-col. 2, line 18).

6. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giancaterini '092 in view of Datta '952 and Patel '511 as applied to claim 5 above, and further in view of Skinner, Jr. et al. (U.S. Patent 4,154,494, hereafter '494).

Claims 6-8: '092, '952, and '511 are discussed above, but do not explicitly teach that an oxidizer is provided on the screen. '494 teaches that an oxidizing agent, such as potassium nitrate, may be included during a combined screenbake and frit curing in order to evolve oxygen and thereby minimize reduction during the frit curing (col. 2, lines 35-65). '494 teaches that the oxidizing agent is applied to the inside of the funnel, but is open to the possibility that it may be provided elsewhere (col. 2, lines 41-48). Taking the references as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the oxidizing agent of '494 in the method of '092 and '511 in order to have minimized reduction during the frit curing. Furthermore, it would have been obvious to have placed the oxidizing agent into the decomposable panel coatings of '092 and '511 with a reasonable expectation of success because '494 teaches a) that the oxidizing agent may be present in the form of a coating inside the funnel and panel upon joining, b) that the oxidizing agent operates by decomposing from its coating, and c) '494 indicates that the funnel is not the only location in which the oxidizing agent may be located and because the panel coating of '092 and '511 is taught to be decomposable and is necessarily confined within the joined panel and funnel during the frit sealing.

Claims 9-10: As discussed above, '092 teaches that the probability of blister formation is directly proportional to the decomposition rate. It has been held that the discovery of the optimum value of a result effective variable in a known process is ordinarily within the skill in the art. *In re Boesch and Slaney*, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have optimized the decomposition rate for the optimum balance of productivity and blister formation.

7. Claims 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giancaterini '092 in view of Datta '952 and Patel '511 as applied to claim 5 above, and further in view of Wagland (U.S. Patent 5,776,555, hereafter '555).

'092, '952, and '511 teach baking CRT screens to decompose organics at a variety of temperature rates and teach heating to 225 °C at 7.4 °C/min. for 27 min, but does not explicitly teach the 2^{nd}-5^{th} temperature rates and ranges of Applicant's claim 12. While '511 teaches that baking may occur at about 450 °C (col. 2, lines 9-18), which is about 460 °C, and '952 teaches the use of polystyrene (col. 7, lines 11-45), there is no explicit teaching that polyvinyl alcohol and ammonium oxalate necessarily decompose in the regions of 240-300 °C, 300-350 °C, and 350-460 °C. Furthermore, the references do not teach the presence of polymethylmethacrylate (PMMA), poly(2-hydroxyethyl methacrylate) (PHEM).

However, '555 teaches that PMMA and PHEM are operative decomposable materials for smoothing phosphor layer prior to aluminizing (col. 3, lines 8-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated PMMA and PHEM into the coating of '092 and '511 with a reasonable expectation of success because '555 teaches that they are operable smoothing lacquer materials.

Therefore, taking the references as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included ammonium oxalate, PMMA, PHEM, and polystyrene as decomposable materials before aluminizing the screen, and it would have been obvious based on the teachings of '092 and '511 that the process necessarily involves a trade-off between greater production for faster heating and less blister formation for slower heating to have optimized the temperature profile of decomposition in order to achieve a desired balance of productivity and blister formation.

Response to Arguments

8. Applicant's arguments filed 8/16/2005 have been fully considered but they are not persuasive.

Applicant argues that the gaseous decomposition products do not have to immediately pass through the holes beause they may absorb on the surface. The argument is unconvincing because such absorbed species do not affect the volume rate of the decomposition product. A large change in volume would necessarily form blisters unless the gas passed through the holes. One of ordinary skill in the art understands that the greater temperatures (and therefore higher ramp rates) necessarily generate gas faster, and therefore one of ordinary skill in the art would have recognized the teachings of '092 as an admonition not to heat the substrate at a rate that would have caused blistering.

Applicant argues that '092 and '952 do not teach tailoring thermal cycles. The argument is unconvincing because '092 and '952 teach heating in a manner which will not form blisters and thus satisfies the language of the claims. Applicant questions what known substitution '952 provides regarding the tailoring of thermal cycles. The Examiner's remarks regarding substitution are made regarding particular layers in the CRT and the use of electrophotographic screening.

Applicant states that '092 teaches away from controlling blisters by adjusting thermal cycles by teaching the use of microcrystal treatment. The statement is unconvincing because it is false because '092 uses a thermal cycle in conjunction with its microcrystal treatment and therefore explicitly teaches the use of such thermal cycles.

Applicant argues regarding claim 3 and 11 that '092 does not teach a plurality of rates of increase. The argument is unconvincing because the claims do not require that the rates be different for different temperature regimes. Therefore, a plurality of different rates is not required by the claims. Furthermore, the use of a plurality of temperature rates in a CRT baking temperature profile is well known in the art. See, e.g., Patel.

Applicant argues that there is no reason to adjust the technology of '092 to use the screen weights of '055. The argument is unconvincing because there must be a screen weight of organic materials in '092, and therefore, one of ordinary skill in the art would have been motivated to have explored screen weights known in the art to understand what operative screen

weights would have been. '055 is cited as representative of what would have been found. Furthermore, the emphasis of '055 on the screen weight indicates that screen weight is a result-effective variable. It has been held that the discovery of the optimum value of a result effective variable in a known process is ordinarily within the skill in the art. *In re Boesch and Slaney*, 205 USPQ 215 (CCPA 1980).

Applicant argues that Patel does not suggect the curtailing of blistering by tailoring the heating rates. The argument is unconvincing because '092 suggests curtailing of blistering. Patel is cited for its teachings well known in the art that the baking profile is well known in the art as a result-effective variable and that profile with multiple heating rates are known profiles for such baking. One of ordinary skill in the art would not have ignored the admonition of '092 to eliminate blistering when considering baking profiles.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant argues that Wagland, Patel, Giancaterini, and Skinner, Jr. does not teach an electrophotographic proces. The argument is unconvincing because Datta does. Applicant argues that Datta does not disclose a combine bake and seal process. The argument is unconvincing because Patel and Skinner do.

Applicant argues that their experimentation is different from the routine experimentation than that suggested by the references. The argument is unconvincing because the discovery of an optimum result of a result-effective variable via a different form of experimentation does not by itself entitle Applicant to a patent using the optimum result.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lerner (U.S. Patent 3,821,009) is cited for its teachings regarding ammonium oxalate. Shibaoka et al. (U.S. Patent 5,252,112) is cited for its teachings of the provision of potassium nitrate to CRT panels.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (571) 272-1418. The examiner can normally be reached on Monday-Thursday, 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Cleveland
Primary Examiner
Art Unit 1762

10/3/2005